

REMARKS/ARGUMENTS

Claims 3-14 and 20-39 stand allowed.

Claims 1, 2 and 15-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Champlin (USP 6,294,896) in view of Marzalek (USP 5,162,723). Applicants respectfully traverse this rejection as follows.

In proceedings before the Patent and Trademark Office, "the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art". In re Fritch, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (citing In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). "The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references", In re Fritch, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992)(citing In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988)(citing In re Lalu, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1988)).

Even if, arguendo, all of the claim limitations of Claims 1 and 19 are present when all of the references are combined, "obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, **absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined ONLY if there is some suggestion or incentive to do so.**" ACS Hosp. Systems, Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. **The mere fact that the prior art may be modified in the manner suggested by the Examiner and does not make the modification obvious unless the**

prior art suggested the desirability of the modification. In re Gordon, 733 F.2d at 902, 221 USPQ at 1127. Moreover, **it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious.** In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed.Cir.1991). See also Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985).

Moreover, "all words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Independent Claim 1 requires and positively recites, a **method of downconverting** a first periodic voltage waveform into a second periodic voltage waveform, comprising: "obtaining from the first voltage waveform **a plurality of temporally distinct samples respectively indicative of areas under corresponding half-cycles of the first voltage waveform**", "combining the samples to produce the second voltage waveform" and "manipulating the samples to implement a filtering operation such that the second voltage waveform **represents a downconverted, filtered version of the first voltage waveform**".

Independent Claim 19 requires and positively recites, an apparatus for **downconverting** a first periodic voltage waveform into a second periodic voltage waveform, comprising: "an input for receiving the first voltage waveform", "a sampler coupled to said input for obtaining from the first voltage waveform **a plurality of temporally distinct samples respectively indicative of areas under corresponding half-cycles of the first voltage waveform**", "a combiner coupled to said sampler for combining the samples to produce the second voltage waveform" and "at least one of said sampler and said combiner operable for manipulating the samples to implement a

filtering operation such that the second voltage waveform **represents a downconverted, filtered version of the first voltage waveform**".

In contrast, Champlin does not teach down-conversion. Champlin teaches applying an input voltage/current and sampling the input and output current/voltage to figure out the impedance/immittance of a device. Further, even though Champlin mentions that one could apply a current as an excitation, nowhere in the Champlin patent is there any mention or teaching of down-conversion. Champlin addresses measuring V/I or I/V for an element, but not down-conversion. Should the Examiner maintain his rejection, Applicants respectfully request that the Examiner specifically identify any mention of down-conversion in the Champlin reference.

Marzalek starts from a sampled signal and passes the sampled signal to a filter that may have gain. Marzalek does not provide any teaching that overcomes the above-identified deficiency of the Champlin reference. Applicants have reviewed the section of Marzalek relied upon by the Examiner for teaching down conversion (col. 8, lines 20-32) but fail to find any teaching of down-conversion. Accordingly, the 35 U.S.C. 103(a) rejections of Claims 1 and 19 are overcome.

Claims 2, 15-18, 40 and 41 stand allowable as depending from allowable claims and including further limitations not taught or suggested by the references of record.

Claim 2 further defines the method of Claim 1, wherein said obtaining step includes transforming the first voltage waveform into a corresponding current waveform, and integrating each half-cycle of the current waveform. Claim 2 is allowable for the same reasons as set forth in support of the allowance of Claim 1.

Claim 15 further defines the method of Claim 1, wherein said filtering operation includes one of FIR and IIR filtering. Claim 15 is allowable for the same reasons as set forth in support of the allowance of Claim 1.

Claim 16 further defines the method of Claim 1, wherein said filtering operation includes one of fractional coefficient filtering and differential coefficient filtering. Claim 16 is allowable for the same reasons as set forth in support of the allowance of Claim 1.

Claim 17 further defines the method of Claim 1, wherein said filtering operation includes triangular coefficient filtering. Applicants have previously discussed the deficiencies of the Peterson reference. Claim 17 is allowable for the same reasons as set forth in support of the allowance of Claim 1.

Claim 18 further defines the method of Claim 1, wherein the first voltage waveform is an RF waveform. Claim 18 is allowable for the same reasons as set forth in support of the allowance of Claim 1.

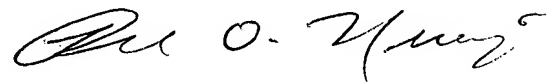
Claim 40 further defines the method of Claim 1, wherein said manipulating decimates the samples. Claim 40 is allowable for the same reasons as set forth in support of the allowance of Claim 1.

Claim 41 further defines the apparatus of Claim 19, wherein said manipulating decimates the samples. Claim 41 is allowable for the same reasons as set forth in support of the allowance of Claim 19.

New independent Claims 42 and 43 are similar in scope to Claims 1 and 19 and are therefore similarly allowable.

Claims 3-14 and 20-39 are allowed. Claims 1, 2, 15-19 and 40-43 stand allowable over the cited art. Applicants respectfully request allowance of the application at the earliest possible date.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ron O. Neerings", with a stylized flourish at the end.

Ronald O. Neerings
Reg. No. 34,227
Attorney for Applicants

TEXAS INSTRUMENTS INCORPORATED
P.O. BOX 655474, M/S 3999
Dallas, Texas 75265
Phone: 972/917-5299
Fax: 972/917-4417